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OF
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MEDICINE.

(220) The Etiology of Gangrene of the Lung, with Remarks on the Anatomy of the Larger Bronchi.

PROFESSOR VON SCHRÖTTER records the particulars (*Wiener klinische Wochenschrift*, No. 45, 1890) of a case of a strongly-built man, aged 53, who had previously suffered a good deal from chronic laryngeal catarrh, and had recently returned from a long journey with complete loss of appetite, cough with some amount of fever, and local tenderness to pressure on the right side of the chest behind. There were no local physical signs at first; coarse crepitation appeared later about the fifth rib in front, but there was no dulness. The patient expectorated some very foul yellowish sputum, in which elastic tissue was discovered. Gangrene of the lung was diagnosed, but no positive cause for it could be found. There was no history of any foreign body having been inhaled. The symptoms increased slightly, but no cavity could be discovered. Long threads of fibrillar connective tissue were shortly afterwards expectorated in very large numbers. Improvement gradually set in, and the patient made a good recovery. Microscopic and chemical examination of the expectorated threads proved them to consist of tissue not normally found in the lungs, although they might possibly have been derived from the periosteum of the ribs or from the pleura in relation with it. A more easily accepted view would be that a small fragment of bone with periosteum attached had been drawn into the lung during a hurried meal, and that the expectorated matters consisted partly of gangrenous lung tissue and partly of the foreign body undergoing disintegration. Professor von Schrötter calls attention to the greater relative frequency with which foreign bodies are lodged in the right bronchus than in the left, and points out that there is much difference of opinion as to the cause of this frequency. The exact anatomical relation of the right bronchus to the middle line of the trachea appears to be still a matter of dispute, and further experiments are to be undertaken on a large scale by his assistants to set the matter at rest and to explain, if possible, the preference shown by foreign bodies for the right instead of the left bronchus.

(221) Pneumonia of Possibly Septic Origin.

DR. KELYNACK, of Manchester, records in the *Medical Chronicle* for November, 1890, two remarkable cases of pneumonia occurring in the persons of two Russian Poles, husband and wife. The man was believed to have contracted his illness during exposure on the Manchester Ship Canal works, and his wife had nursed him until she herself was attacked. In his case the symptoms at first were those of simple pneumonia of the right base; but on the eighth day of observation he began to suffer from twitching of the legs to such an extent that the right limb was jerked out of the bed. This continued for three days, accompanied by severe pain in the head and great prostration. He subsequently made a good recovery from the pneumonia, but suffered intense myalgia of the muscles of the right thigh, and from choreiform movements of the head and arms, but all these in turn passed away. In the case of the wife there was high fever and great prostration. Tetanoid contractions of muscles were observed, beginning in the hands and spreading to the shoulders, neck, and facial muscles. These contractions were sometimes clonic and sometimes tonic, ceasing at first during sleep. After a short period of subsidence the spasmodic contractions began again in the depressors of the lower jaw, and for more than thirty hours the mouth could not be closed even by force, after which the contraction relaxed spontaneously. Bedsores formed, the fever remained high in spite of antipyretic treatment, and the patient died. Dr. Kelynack offers comments upon the possible influence of miasmatic poison in both these cases, and the exceptional association of such marked nervous symptoms in the ordinary course of catarrhal pneumonia.

SURGERY.

(222) A Modification of Senn's Method of Establishing Lateral Intestinal Anastomosis.

DR. W. SACHS, assistant to Professor Kocher, of Berne, describes (*Centralblatt für Chirurgie*, October 4th) a modification of Senn's method of forming lateral anastomosis between two separated portions of intestine. Senn's procedure of applying two bone plates is held to be not free from danger. The sutures with which the plates are armed, after they have been passed through the intestinal walls and tied together, are enclosed within punctured walls, through which capillary communication may be established between the interior of the intestine and the peritoneal cavity. A small abscess may be set up around one of the threads cut very short and enclosed on every side by the opposed serous surfaces of the two portions of the gut. Another danger, pointed out by Helferich, is gangrene of the intestinal wall, due to pressure of the bone plates. Sachs proposes the use of an appliance resembling in form a sleeve stud perforated in the middle. This is made up of two bone plates fixed together, yet separated to a small extent from each other as far as the uniting portion immediately around the central perforation. A longitudinal incision having been made in each of the opposed portions of intestine, each disc is in-

serted into the intestinal canal on either side, and the intestinal anastomosis is thus readily and speedily established. Sutures are then applied through the serous membrane on each side wherever there is a tendency to protrusion of the mucosa. The following advantages are claimed for this method, which, however, has as yet been tested only in experiments on rabbits: (1) The interior of the intestine is not exposed for so long a time as it is in Senn's operation. (2) The margins of the intestinal wound rest in the deep annular groove between the joined discs, and are thus protected against infection and the results of pressure. (3) There is no risk of the cut edges adhering together. (4) It is unnecessary to pass any suture through the whole thickness of the intestinal wall.

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(223) Lateral Deviation of the Spine as a Diagnostic Symptom in Pott's Disease.

DR. ROBERT W. LOVETT (*Boston Medical and Surgical Journal*, October 9th, 1890) calls attention to this symptom, which he says is rarely spoken of at all in the textbooks, and is then regarded as of no special significance and as probably due to the wearing away of the vertebral bodies more on one side than the other. The only article which deals with it as its importance warrants is one by Dr. Bartow in the *Annals of Surgery* for July, 1889. Dr. Lovett has looked for the last nine months for the existence of lateral deviation in nearly every case of Pott's disease that has come under his care. He has found it exceedingly common, and frequently combined with rotation of the vertebræ, as in scoliosis. He attributes it to muscular spasm, similar to that so often seen in joint disease, and looks upon it as one of the earliest symptoms of Pott's disease. He found that the rotation did not always follow the same rule as in scoliosis, but that in at least a third of the cases rotation forwards and not backwards corresponded to the convexity of the curve. This lateral deviation in Pott's disease is most quickly overcome by recumbency and extension; but the ordinary treatment by a plaster-of-paris jacket and extension is generally sufficient to overcome the lateral deformity if efficiently carried out.

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(224) Disinfection of India-rubber Instruments.

M. PONCET, of Lyons (*Revue de Chirurgie*, May, 1890), has read a memoir on this subject before the Paris Société de Chirurgie. Dr. Auvard (*Arch. de Tocologie*, August, 1890) has dwelt upon the difficulty of keeping rubber tubes, etc., antiseptic, whilst metallic instruments can be more simply purified (see WEEKLY EPITOME, October 11th, p. 12). M. Poncet particularly dwelt upon the disinfection of sounds and bougies. It is especially important that these instruments should be kept clean; they are in constant use, and if foul may set up grave complications. On the other hand, however clean they may be, they must retain their smoothness and the requisite degree of firmness or pliancy, else irritation and subsequent worse trouble will follow their use. Dr. Auvard has stated that strong antiseptic solutions alone avail for purifying india-rubber appliances; but M. Poncet finds that these solutions rapidly alter the consistence of the material in question, hence they are not suitable for bougies. He therefore sterilises rubber instruments in a dry heat raised to 140° C.; they are then kept in an inert powder already sterilised. The material which M. Poncet believes to be most suited for the purpose is powdered talc. If imbedded in that powder sounds and bougies may be kept indefinitely free from micro-organisms.

(225) Stretching of the Facial Nerve for Spastic Irritability.

DR. ROBERT SCHOTT (*Deutsch. med. Woch.*, October 30th, 1890, p. 967) describes a case of this kind, the history of which was as follows: The patient, a woman, was attacked without any obvious cause with spasm of the right side of her face. The fullest investigation failed to discover any exciting cause of the nature of the trouble—carious teeth, etc. Counter irritation and the like failed to give any permanent relief, and an operation was performed in order to reach the nerve trunk and stretch it. For the first month or so the relief was almost complete, though at the same time a partial paralysis ensued. As the normal functions and reactions of the nerve returned, the spasm reappeared, and five months after the operation was as bad as ever. Dr. Schott has carefully perused the history of a number of more or less analogous cases which have been recorded by surgeons in various portions of the world, and he points out that in only three instances was there any evidence to show that the relief was permanent. At the same time, considering the small amount of danger which attends such operations, they are always worth a trial in inveterate cases.

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226) Administration of Chloroform after Tracheotomy.

DR. JOSEF WINTER, of Professor Billroth's clinic in Vienna, describes (*Wiener klinische Wochenschrift*, No. 45, 1890) a simple apparatus for the administration of chloroform through the tracheotomy tube. A spring clip is attached to the projecting part of the tube, and to one side of the clip is fixed a small nozzle, on to which an india-rubber tube can be slipped. The vapour is then blown through the latter by means of an ordinary hand-ball bellows, and can thus be mingled with the inspiratory stream of atmospheric air in any proportion that may be desired.

PHARMACOLOGY AND THERAPEUTICS.

(227) Further Trials of Orexin, Chloralamide, and Amylene Hydrate.

DR. UMPFENBACH records his experience with these drugs on patients in the lunatic asylum at Andernach (*Therap. Monatsh.*, October, 1890). Hydrochloride of orexin was administered in 3 to 4-grain doses in 25 cases; 4 of these had loss of appetite from various bodily illnesses, 6 were hysterical or hypochondriacal, 4 had loss of appetite from psychical depression, and 11 had complete loss of appetite with refusal of food. The first 10 of these got the orexin in pills, the other 15 in powder in soup or milk. The taste is bitter, but it was usually, although not always, taken without much complaint. Out of the first-mentioned 4, 3 were greatly improved; out of the 6, 5; and out of the second-mentioned 4, only 1. In the second class of 11, many had to be forcibly fed, but in 5 of these the improvement was so marked that they continued to eat of their own accord. In 6 there was no effect. No inconveniences were observed, although Penzoldt has observed burning in the œsophagus, and Podgorski singing in the ears, after orexin. The author concludes that orexin is a useful bitter tonic, although it does not succeed in every case. Chloralamide was given in 55 cases, dissolved in weak alcohol and syrup. He began with 30 grains at night, and rose to 90 grains per dose and per day. In paranoia, general paralysis, and excitement in epileptics, it usually acted well, while in general restlessness and in melancholia its hypnotic effects

were *nil* or very slight. In a very few cases the sleep was disturbed by dreams, in others gastric irritation and purgation were observed, also excitement and skin eruptions. As a rule, however, no unpleasant effects ensued, and the drug could be taken for months without affecting the heart, the blood vessels, or the uro-genital system. The author concludes that chloralamide is a useful enough hypnotic; that its action, however, is not certain, and that it has no advantages over many other hypnotics such as chloral hydrate. Amylene hydrate has been recommended in epilepsy by Wildermuth (*Neurol. Centralbl.*, 15, 1889). The author tried it in 7 cases of epilepsy, in 5 to 8-gramme doses *per diem*. In two patients (who had about 9 to 11 epileptic attacks monthly) the fits remained absent as long as the drug was taken. In another case the effect was very transient. In the others there was absolutely no improvement. The drug had the great drawbacks of causing sleepiness and then excitement after its hypnotic effects had worn off.

(228) Treatment of High Temperature in Typhoid Fever and Phthisis Pulmonum with small frequently repeated Doses of Antifebrin.

Dr. August Favrat has treated a large number of cases in the wards of Professor Sahli, in Berne, with small frequently repeated doses of antifebrin (*Deut. Archiv. f. klin. Med.*, Hft. 6, 511). He is strongly in favour of antipyretic treatment, as it greatly increases the comfort of the patient, and, by lessening metabolism, tends to husband the strength. The author points out at some length that most antipyretics are depressing, and that many of the newer ones are used rashly in practice, before we are thoroughly acquainted with their dangers, their doses, and the most effective ways of exhibiting them. When one reflects how long it has taken us to become even imperfectly versed in the possibilities to be attained with digitalis, opium, etc., we must conclude that new medicines are too lightly introduced and in many cases too lightly cast aside. These considerations, and the fact that antifebrin, although a sure and active antipyretic, has certain drawbacks, such as the production of collapse, cyanosis, etc., have induced Professor Sahli and the author to try if they could not obtain the antipyretic action and at the same time avoid these drawbacks by giving the medicine in small repeated doses, instead of in a single large dose, as is customary. The advantages of such a plan are obvious, as any unpleasant effects may be at once observed and the medicine stopped before serious harm has been done. Antifebrin acts rapidly, and is therefore specially suited for exhibition in small repeated doses, whereas a slowly acting antipyretic, such as quinine, either has no action in small doses, or causes a cumulative action after several doses have been given, thus losing the advantages to be derived from a divided dosage. In typhoid fever antifebrin was given in ½ to 1½-grain doses hourly in four cases. In no case was more than 20 grains given during the twenty-four hours. The action was satisfactory, and in all cases the temperature fell more markedly the higher it was. In seven cases in which similar doses were given every two hours the reduction of temperature was scarcely sufficient. When the morning temperature was not over 101.5° F, however, a two-hourly dose was found quite sufficient (four cases). Similar doses kept the temperature about normal in cases of phthisis. Neither in typhoid fever nor in phthisis did antifebrin exert any specific action on the course or duration of the disease. In all these cases antifebrin was well borne; a gentle antipyretic effect was maintained; in several cases sweating was present, but only in two was there the least sign of cyanosis or rigors. In no case was the patient ever much disturbed, and there were never any alarming symptoms. In conclusion the author gives a warning against the use of large doses, 3 grains being reckoned as such. Although much larger amounts are often well borne, yet in certain cases fatal results have ensued. A number of such cases are cited.

(229) Injections of Pyoktanin in Cystitis.

Dr. Leon Nencki, of Warsaw, reports (*Gazeta Lekarska*, No. 32, 1890, p. 642) four cases of exceedingly obstinate chronic cystitis (three of gonorrhœal, one of rheumatic origin), in which, after ordinary measures had completely failed, the injection of a 1 in 1,000 and 1 in 500 solution of blue pyoktanin, repeated twice daily, was followed by cure in from ten to fourteen days. In every one of the cases, a very marked amelioration (decrease in turbidity of the urine, disappearance of alkaline reaction and pain, etc.), took place in a couple of days after the beginning of the treatment.

(230) Clinical Observations on the Action of Caffeine Morphine, Atropine, Ergot, and Digitalis on the Arterial Blood Pressure.

Dr. Sophie Frenkel (*Deut. Archiv. f. klin. Med*, Hft. 6, p. 542) has carried out a series of observations on the effect of the above drugs on the blood pressure in man. The observations were made with the sphygmomanometer of von Basch, which is the only instrument by means of which blood pressure can be measured in man. It still leaves much to be desired, as it does not give absolute but only relative results, which, however, are very useful for comparison. Careful directions are given for the attainment of accuracy in the observations. Caffeine was given *per os* and subcutaneously in 15 cases of more or less severe heart disease with failure of compensation. It raised the blood pressure, removed the symptoms of loss of compensation, greatly improved the subjective symptoms, and increased diuresis. The rise of blood pressure was, however, always very moderate; it reached its height on the second or third day and remained so only for one or two days, after which it fell, but never to its original low point, the caffeine being continued all this time. There is no cumulative action. The diuretic action of caffeine does not depend on the rise of blood pressure, as the increase of urine precedes the rise of pressure and continues after it. The pulse rate was never much affected. The effect of a single large dose given subcutaneously was studied in eight cases. In a few minutes there occurred a marked rise of blood pressure, and hence the author concludes that this is a rapid and convenient method of treating collapse, not only in cardiac but in other cases. Morphine, in doses of $\frac{1}{4}$ to $\frac{1}{2}$ grain is often given in hæmoptysis, and hence its action on the blood pressure is of interest. Fifteen observations were made (mostly on patients with chronic nervous diseases), and it was found that the blood pressure remained unaffected in some cases, while in others there was a very moderate rise. The pulse rate was not affected. These results are in opposition to the generally received opinion, according to which morphine produces a slight fall in pressure. The beneficial effects of morphine in hæmoptysis are not to be ascribed therefore to its causing a fall of blood pressure, but rather to its narcotic quieting effects. No observations were made with it in cardiac cases, but depression of the circulation from morphine is certainly not to be feared. Atropine ($\frac{1}{150}$ to $\frac{1}{75}$ grain subcutaneously) caused a marked rise of blood pressure and pulse

rate, lasting for about two hours. There was no effect on the amount of urine. Owing to its unpleasant effects (dryness of mouth, etc.) the use of atropine in cardiac cases is not advisable. Ergotin was found to cause a rise of pressure with slowing of the pulse. Digitalis gave a marked rise of blood pressure, the observations simply confirming the generally accepted views as to its action.

(231) Action of Nitrous Oxide, Nitrogen, Oxygen, and Carbonic Acid upon the Circulation.

Drs. H. C. Wood and Cerna have carried out experiments (*Therap. Gazette*, August and September) to determine the action of nitrous oxide and other gases on the circulation. They find that after the inhalation of nitrous oxide gas there is almost always a rise in the arterial pressure, which rise varies very greatly in its extent, as well as in the rapidity of its occurrence. Sometimes it is immediate and excessive; usually, however, it is slowly produced, and only moderate in extent. In some cases it occurs a considerable time before the abolition of the conjunctival reflexes, while occasionally its coming on is postponed until after the disappearance of the eye reflexes. In all the experiments, if the inhalation were continued, the blood pressure finally began to fall, and at last reached the zero line; always, however, the pressure was well maintained until long after the complete cessation of respiration, the animal dying through paralysis of respiration, and not through failure of the heart. The maintenance of the circulation so long after respiration is paralysed is very remarkable, and is of great practical importance. Nitrous oxide would appear, directly or indirectly, to stimulate the heart, and to keep up this stimulation at a time when the respiratory function is almost completely obliterated. Stoppage of respiration can frequently be relieved by artificial respiration, but we have no substitute for an arrested heart, hence the safety of nitrous oxide anæsthesia. The authors point out, however, that the great rise of pressure which sometimes occurs is not without its dangers, as it has caused apoplexy, and, according to Lafont, diabetes mellitus and albuminuria. The rise in pressure is due to vasomotor spasm, the subsequent fall to vasomotor paralysis. There is slowing of the pulse, accompanied by a pronounced increase of energy in the heart's contractions, and increase in the size and force of the pulse wave; very late in the poisoning there is excessive rapidity and feebleness of the pulse (corresponding to the period of low blood pressure mentioned previously). The slowing of the pulse is due to stimulation of the vagi. A mixture of nitrous oxide with 10 per cent. of oxygen has no anæsthetic action, nor does it raise the blood pressure, but it slows the pulse. Inhalation of nitrogen causes complete anæsthesia about as quickly as nitrous oxide. The two gases also act on the circulation in much the same way; hence it is very probably the case that both cause anæsthesia by shutting off the supply of oxygen to the blood. The authors are of opinion that both simply cause asphyxia with consequent unconsciousness. Inhalation of oxygen had no influence on the circulation. The oxygen was inhaled for from two to four minutes, and was given undiluted with air. There was no anæsthesia. Inhalation of pure carbonic acid generally produced anæsthesia within a minute, and there was a rapid fall of blood pressure till death. When diluted with oxygen or air it increased the arterial pressure, having apparently most power when mixed with oxygen in the proportion of two to one. This rise is due to stimulation of the vasomotor centre in the medulla. The pulse is always greatly slowed.

PATHOLOGY.

(232) Partial Excision and Regeneration of the Liver, and its Effect on the Bile.

It may be remembered that, in the Physiological Section at the recent Berlin Medical Congress, Ponfick showed two rabbits in which he had removed nearly three-fourths of the liver several months before. On the animals being killed, he demonstrated the enormous amount of new hepatic tissue that had been formed. In *Virch. Archiv* [11], ix, p. 193, 1890, Ponfick describes the direct and remote effects of partial extirpation of the liver. The immediate effects depend on the amount of liver removed; they are a temporary congestion of the mesenteric veins and of the corresponding abdominal organs. If three-fourths of the liver be removed there may be an escape of blood from the greatly congested rootlets of the portal vein. There are numerous little points of erosion in the stomach, especially in the pyloric region, while in the spleen there are hæmorrhagic infarctions. These phenomena gradually disappear after several weeks. The cæcum and large intestine remain unchanged. The remote effects are that the body, as it were, strives to regain its metabolic equilibrium. As the liver alone can secrete bile, this can scarcely be accomplished in any other way than by an increase in the volume of the liver. A short time after the operation the stump of the liver is enlarged. After removal of one quarter of the liver, even after eight days, the original volume of the organ has been nearly restored, and when three-fourths are removed the liver may regain four-fifths of its original volume, and in some exceptional cases even the entirety thereof. Lujankow (*Virch. Archiv* [11], x, 3, p. 485, 1890) removed 19 to 43 per cent. of the liver substance in guinea-pigs, and compared the amount and composition of the bile secreted by such a liver with those of an intact liver. The bile, two or three hours after the operation, is sometimes increased and sometimes diminished, but the composition of it is not essentially altered.

(233) Transplantation of Muscle.

Magnus (*Cent. für Chir.*, No. 45, p. 856) conducted a series of experiments on rabbits under the direction of Nauwerck, in order to establish what became of the transplanted muscle. The method adopted was that used by Glück, and muscle of the same species was used in each experiment. The animals were kept alive from seven to sixty days. At the end of two months it was found that the defect in the muscle was made good by the piece transplanted, but a closer examination with the microscope revealed the important fact that the transplanted muscle had in that time entirely, or almost entirely, disappeared, its place being taken by newly-formed muscle developed from the ends of the original muscle, and, it may be, from some remnants of the transplanted piece. Thus the transplanted piece acted only as a temporary structure, and did not become welded, as it were, at each end to the original muscle. This method, he thinks, may prove of some value in filling up small gaps.

(234) Accessory Thyroid Bodies in the Trachea.

Wölfler (*Langenbeck's Archiv*, Bd. 40, p. 169) contributes a long and well illustrated monograph, "Zur chirurgischen Anatomie und Pathologie des Kropfes und Nebenkropfes." He discusses the origin of the thyroid and accessory thyroids in the light of the views of His on the development of the branchial arches. Among other interesting observations he points out the existence of accessory thyroids within

the trachea, and refers to a case published by Radestock (Ein Fall von Struma intratrachealis, Ziegler und Nauwerck, *Beiträge zur pathologischen Anatomie*, Bd. iii, Hft. 3, p. 289) where an accessory thyroid was found in the trachea as deep as the entrance to the right bronchus. Wölfler reproduces Radestock's figure of the specimen. This case deserves careful study in connection with those specimens, of which several are now on record, described as lymphatic glands which have ulcerated into the windpipe and caused death.

(235) Pathological Value of the Gasserian, Lenticular, Spinal, and Cardiac Ganglia.

DR. HALE WHITE (*Brain*, Autumn Number, 1890), continuing his researches on the sympathetic system, examined the Gasserian ganglia of thirty-six bodies, including each sex and diverse ages and causes of death. In all cases the nerve cells were well formed, of the rounded type without branching processes; both nucleus and nucleolus distinct; cell border sharp. Each cell nearly filled its capsule; a few showed slight granular pigmentation; none were atrophied; all the nerve fibres healthy. The vessels appeared normal, but many of the sections were crowded with leucocytes—as in the superior cervical and semilunar ganglia. In some cases a minute capillary hæmorrhage could be seen in the sheath of the ganglion. Clearly this had occurred shortly before death, and probably it was of no pathological value. In the lenticular ganglia and their nerves there was total absence of morbid change. Many granular highly pigmented cells were seen in the ganglia of the spinal nerves, particularly the lumbar. They, however, were never so atrophic as those of the superior cervical and semilunar. The nerve cells from the cardiac ganglia were always much smaller than those of the larger ganglia, but uniformly appeared to be quite healthy, without pigmentary or granular change. The author concludes that, in the human adult, the thoracic and spinal ganglia are partially degenerate and probably only in parts functionally active, but the cells of the Gasserian, lenticular, and cardiac ganglia appear to retain their functional integrity, and any alterations discovered in them probably will be of much pathological interest.

(236) Chyle Cysts of the Mesentery.

DR. RASCH (*Trans. Obstet. Society of London*, vol. xxxi, p. 311) describes at length a large cyst of the mesentery upon which he successfully operated. It contained fluid presenting all the physical and chemical characters of chyle. He refers to a case operated on by Professor von Bergmann (*Arch. für klin. Chir., von Langenbeck*, 1887, s. 201) as probably the first recorded case. Such cysts are very rare. Dr. Fetherston (*Australian Medical Journal*, June 15th, 1890) describes briefly a chyle cyst which he removed from a woman's mesentery. The cyst was thin-walled, unilocular, covered by peritoneum, and contained three and a half pints of chyle. The fluid resembled rich creamy milk, specific gravity 1020, alkaline. It contained a large quantity of albumen, fat, some blood, and the molecular base of chyle. Filariæ sanguinis hominis were sought for but not found. Nothing is known as to the cause of chyle cysts in the mesentery.

(237) Fungus in Cancer of Breast.

IN a case of ulcerating cancer of the breast with enlarged axillary glands removed by operation Trumpp (*Cent. für Chir.*, No. 45, p. 869) found in the tissue of the cancer a peculiar fungus closely resembling the aspergillus niger, only much smaller. This was found throughout the growth, but more especially in the deeper parts. It had not given rise to a general infection of any kind, although it was present in the lymph glands and in the interior of the blood vessels.

(238) Dermoids of the Nose.

DR. F. BRAMANN (*Langenbeck's Arch. für klin. Chir.*, Bd. 40, Hft. 1, p. 101) describes an interesting series of small dermoids occurring on and near the nose. The paper is illustrated by some excellent drawings. Most of the dermoids occurred in connection with the lines of union of the fronto-nasal plate with the lateral processes which form the lips and cheeks. Bramann discusses their relation to these embryonic fissures and their bearing on the theory (Cohnheim's) of tumour germs. A valuable list of references is added at the end of the paper.

(239) Degeneration of Laryngeal Muscles after Division of Laryngeal Nerves.

PINELES (*Pflüger's Arch*, Bd. 48, p. 17) states that microscopic examination of the atrophied muscles of the larynx of a horse after division of the superior laryngeal nerve and of the inferior laryngeal nerve shows that the process is very different in each. (In the horse the superior laryngeal nerve is a purely sensory nerve.) In the larynx, forty-five days after division of the superior laryngeal nerve, the muscles were found in an advanced state of degeneration, some fibres greatly swollen, some with nodular swellings on them at more or less regular intervals, while others were reduced to a very small size, with almost complete absence of transverse, and exaggeration of the longitudinal, striæ, no increase of nuclei in the atrophied muscle fibres, but some increase of the intervening connective tissue. In that, sixty-five days after division of the inferior laryngeal nerves, the muscular fibres were only found to be somewhat smaller in size, without showing any evidence of profound changes; the intervening connective tissue was much increased. In the first case the degeneration was marked and pronounced, and the author refers it to the acute dystrophy of muscles described by Erb, while in the latter it is simply a gradual diminution in size.

BACTERIOLOGY.

(240) Meat Preservation.

DR. HANS BRU (*Centralbl. für Bakteriologie u. Parasitenk.*, Band viii, Nos. 17 and 18) points out that nearly all the newer methods of preparing preserved meats have had to give way before the older methods of boiling, drying, salting, and smoking, which, along with freezing, preserve the taste and digestibility of meats better than any of the chemical methods that have more recently been recommended. All these old methods, he maintains, hinder decomposition and keep meats eatable for a longer or shorter period. Cold acts by preventing putrefactive changes in meat, 2° to 4° C., with good ventilation, preventing the development of most organisms. Boiling with subsequent exclusion of air is, of course, good, but can only be carried out in large establishments and under specially favourable conditions. Drying gets rid of the water, without which micro-organisms cannot develop, but, although there is no loss of albuminoid or salts when this method is used, the taste is somewhat impaired. Salt also acts by removing water, but it also removes the extractives, and interferes with the delicate flavour of both meat and fish.

Smoke acts partly by drying, the heat at which it is generated rendering this necessary, but partly, also, by the action of the small quantities of antifermentative constituents, such as creasote, carbolic acid, and even volatile oils, which appear to have a direct action on the vitality of putrefactive organisms. The author agrees with Förster, that salt has little or no effect upon most pathogenic organisms, but it undoubtedly interferes with the development of the cholera bacillus and of anthrax bacillus that contains no spores, and probably, also, of some of the non-pathogenic but putrefactive forms. As the result of his experiments on a very large number of food materials, such as ham, bacon, pork, various kinds of sausages, and fish, Beu comes to the conclusion that most meats are salted not only to preserve the taste, but also to withdraw a large proportion of the water from flesh meats; that smoking also withdraws a considerable quantity of water, that it hides the salty taste, and that, being able to penetrate dried flesh, it is better able to exert its antiputrefactive action than on fresh meat. Salted lean flesh, exposed to the action of smoke at from 22° to 25° C. for forty-eight hours, no longer contained liquefying organisms, which had been present in considerable numbers before the smoking operation was commenced, but non-liquefying organisms disappeared only on the ninth day of smoking. Salt bacon salted for ten days, and then exposed to the action of smoke for forty-eight hours, also showed no liquefying organisms with a fragment from near the centre taken with the most strict precautions, and broken up in liquid gelatine, which was afterwards allowed to solidify. All non-liquefying organisms had disappeared on the seventh day of smoking. Bacon salted for five weeks contained no organisms after seven days' smoking. Fresh unsalted meat contained both kinds after six days of smoking, and sausage also contained both at the end of twelve days; this being exactly in accordance with what would be expected from the large amount of water that is contained, from the nature of the meat used, and from the many manipulative processes through which it has to go before the smoking is commenced. Fish may be preserved for a short time by smoking only, but it could not be kept permanently. Hams and larger sausages require a longer period of smoking than do similar smaller articles of diet.

(241) Micro-organisms in Leukæmia.

Dr. Claudio Fermi (*Centralbl. für Bakt. u. Parasitenk.*, Band viii, No. 18, 1890) was able, some eighteen months ago, to separate from the enlarged spleen of a man, aged 55, who died of leukæmia, with enlargement of the various organs and of the peritoneal, mesenteric, and axillary glands, pure gelatine plate cultivations of an organism which appeared as rounded or oval white non-liquefying colonies. Inoculated into gelatine in tubes, the growth appeared principally at the surface in the form of a milky-white thickish layer, growing moderately rapidly, and gradually giving rise to slight liquefaction beneath. These colonies were made up of short thick rods with rounded ends, the centre of the rod remaining unstained. At first he was inclined to assign no special *rôle* in the production of leukæmia to these organisms, but as he was unable to find them in similar positions in twelve other bodies that he examined—cases of pleurisy, meningitis, nephritis, sarcoma, diphtheria, tetanus, and typhoid fever—he came to the conclusion that they must have some definite relation to the disease. Kelsch and Vaillard have since then shown that these organisms are pathogenic to rabbits, and that after the death of the inoculated rabbits they may be found in the blood.

(242) Formation of Cholera Poison in Egg Albumen.

Hermann Scholl gives (*Berl. klin. Wochenschrift*, October 13th, 1890) the results of a series of experiments on the formation of cholera poison in egg albumen by the comma bacillus growing under anaërobic conditions. His results differ considerably from Petri's, who made his observations on the cholera organisms as they grew in the presence of free oxygen. He carried on his experiments on the Hueppe-Wood plan. After disinfecting the outer surface of the shell of a fresh egg, a minute hole was chipped in one end, the cholera organism was introduced, and a fragment of sterilised paper smeared with collodion was used to close the opening. The egg was then kept in an incubator at the temperature of 36° C. for eighteen days, at the end of which time, on opening the egg, there was a strong odour of sulphuretted hydrogen, but none of the peculiar aromatic smell that is observed when the cholera bacillus is cultivated aërobically. The white of the egg was perfectly fluid, whilst the yolk was firmer and almost black. A small quantity (5 cubic centimètres) of the fluid white was injected intraperitoneally into a guinea-pig. This was followed in ten minutes by complete paralysis, then by cramp of the extremities, falling temperature, and in forty minutes the animal was dead. The alcoholic extract of the peptonised white of egg (10 to 1) gave a white precipitate; this, washed with absolute alcohol and then with 200 cubic centimètres of water, gave a watery solution of a poison of which 8 cubic centimètres killed a guinea-pig with extraordinary rapidity. The precipitate again washed with water gave a less toxic fluid, but one that still killed an animal in about three hours. This poison is rendered harmless by the action of steam at boiling point for half an hour. A temperature of 75° C. for a short time does not cause any marked alteration, but a temperature of 40° C. in an exhaust chamber, in which is moistened chloride of lime, brings about the destruction of the poison at the end of a couple of days. He gives the various methods of working by which he was led to the conclusion that he was dealing with a toxic peptone. He further maintains that the peptone he has been able to separate from anaërobic cultures is quite distinct from that described by Petri, not only in chemical characteristics, but also in its toxic power, differences, he considers, which are due in great part to this anaërobic mode of growth.

OPHTHALMOLOGY.

(243) The Numbering of Prismatic Glasses.

Landolt (*Archives of Ophthalmology*, October, 1890) points out the defects in the present system of numbering the prisms used in ophthalmic work, and gives reasons in favour of numbering them according to the deviation which they produce. At present prisms are numbered according to their refracting angles. If all glass had the same index of refraction this angle would of course bear a constant relation to the deviating power of the prism; even then, however, it would be convenient to know, without calculation, the effect of the prism. But as the refractive index of glass varies, this numbering gives no exact indication of the strength of the prism. This was of course one of the main arguments that led to lenses being numbered in dioptres instead of inches; that is, in accordance with their refractive power, instead of their curvature. It is now proposed that prisms shall be numbered according to the angular deviation which they cause to a ray passing through. This varies slightly according to the angle at which the ray strikes the prism, being least when

it is perpendicular to the plane that bisects the refracting angle. Dr. Landolt is in favour of using this minimum deviation as the basis of measurement, while others prefer taking the deviation that occurs when the ray is perpendicular to one of the surfaces. It seems reasonable to take either the minimum or maximum as the standard, and the former is more easily defined, and therefore preferable. But the reason given by the writer for this preference—namely, that prisms are generally employed in such a position that they produce the minimum deviation—is probably erroneous, since they are nearly always mounted so that one surface is in the plane perpendicular to the visual axis, and if used, as they frequently are, in combination with a lens, it is almost necessary that they should be placed in this position.

(244) Subconjunctival Cysticercus Cellulosæ.

Dr. Ernst Blessig (*St. Petersburger med. Wochenschrift*, October 18th, 1890) remarks on the frequency with which cysticercus is met with in the vitreous and retina, as compared with the more anterior parts of the eye. Albrecht v. Graefe, in eighty-nine cases of cysticercus, met with only five beneath the conjunctiva, and Hirschberg only saw one such in fifty cases. Cases have also been recorded by Talko (*Klin. Monatsbl.*, 1875), and by Prshybylsk (*Westnik Oftalmologii*, 1885). The author gives the following case, which is the only one he has met with in the St. Petersburg Eye Clinic. A woman, aged 23, was first seen on May 12th. Since the beginning of the year she had noticed a swelling at the inner angle of the right eye, which grew at first rapidly, and latterly more slowly. There was neither pain nor injection, and the patient applied because she wished to have the growth removed, on account of the disfigurement it caused. Close to the plica semilunaris was a greyish-white swelling, the size of a pea. The conjunctiva was freely movable over it, but the tumour could be moved but little on the sclerotic. It offered very firm but elastic resistance, almost like cartilage. The lids could be closed over the swelling, and the eye presented no other abnormality. No evidence of any other cyst was discovered in the cellular tissue in other parts of the body. Under cocaine the conjunctiva was divided with scissors, and the cyst shelled out without any difficulty. The wound was closed by suture, and healed by first intention. The cyst presented the typical microscopical appearance of a cysticercus, the characteristic hooklets being particularly well seen.

RHINOLOGY.

(245) Diseases of the Accessory Cavities of the Nose.

Dr. Max Schaeffer (*Deutsche medicinische Wochenschrift*, October 9th), discussing the differential diagnosis of diseases of these sinuses (with the exception of the maxillary antrum), relies chiefly on the situation of the pain, and on the spot where the purulent discharge is noticed. In the case of the frontal sinus the pain is at the root of the nose and in the supraorbital region, and the pus is found between the septum and the middle turbinated body. In disease of the sphenoidal sinus the pain is more in the middle of the head, and radiates to the occiput, neck, and supraorbital region, whilst the discharge is usually seen on the roof of the nasopharynx, more rarely in the choana, between the superior and middle turbinated bodies. When the ethmoidal sinuses are affected the pain is referred to the cheek and infraorbital region, and the discharge occupies the interval between the middle and inferior turbinated bodies. In long-continued disease of the frontal sinus, swelling, slight œdema, and tenderness over the root of the nose occur, whereas in ethmoidal cases these symptoms are rather to be sought in the infraorbital region. In the treatment of disease of the frontal sinus the author first passes up a brass probe, then, if it be an old-standing case, or necrosed bone is felt, he introduces his spoon probe and scrapes the cavity freely, washing it out with perchloride solution and insufflating iodol or boracic acid. Subsequent cauterisations, if necessary, are made with chromic or trichloracetic acid. The ethmoidal and sphenoidal sinuses are opened and scraped out with the spoon probe without preparatory probing. In the former case the instrument is pushed upwards, backwards, and outwards, between the middle and inferior turbinated bodies at the junction of the middle turbinated body with the outer wall. In the latter it is pressed against the septum and pushed upwards and backwards as if to perforate an imaginary continuation of the septum backwards. Schaeffer maintains that it is not possible to syringe out the frontal and ethmoidal sinuses without making an artificial opening. The author refers briefly to 25 cases under his care of affection of the frontal sinus of which 7 were discharged improved and 18 recovered. Also to 19 cases of disease of the ethmoidal sinuses, of which 17 were cured, 1 improved, and 1 remained under treatment. Of 7 cases of disease of the sphenoidal sinus, 6 were cured and in 1 the result was unknown.

ANATOMY.

(246) On the Origin and Branching of the Nerve Fibres of the Spinal Cord.

The method of Golgi—prolonged immersion of a hardened cord in a weak solution of silver nitrate—has already yielded most fruitful results in regard to the course of the nerve fibres of the central nervous system. It occurred to a Spaniard, Ramon y Cayal (*Anatom. Anzeiger*, v. Nos. 3 and 4), to investigate the course of the nerve fibres in the cord during its development. For this purpose he used chiefly the embryo fowl. Kölliker showed at the Berlin Congress a number of preparations made after the manner of Ramon y Cayal. It should, however, be distinctly noted that to Ramon y Cayal belongs the credit of having discovered the peculiar relations of the fibres of the posterior roots of a spinal nerve. The fowl embryos used were from the sixth to fourteenth day of incubation. The relatively large and parallel fibres of the white matter of the cord give off a considerable number of collateral branches, which begin in a triangular swelling, pass deeply into the cord, and end between the cells of the anterior and posterior cornua, like a free radiating system of fibres. The collateral branches of the anterior columns are larger, and branch between the nerve cells of the anterior cornu; some pass towards the posterior cornu, and others cross by the white commissure to the opposite side of the cord. The collateral fibres of the posterior columns are finer and more numerous. Almost all unite into small bundles, which traverse the substance of Rolando from front to back, and at the apex of the posterior cornu, or somewhat more anteriorly, end in bunches of fibres. Some of the branches traverse the grey commissure. According to Ramon y Cayal, the collateral fibres are connecting fibres, which are sent by the white fibres to the grey matter to bring comparatively distant ganglionic cells into relation with other ganglionic cells. The fibres of the posterior root pass obliquely into the cord from the intervertebral ganglia into the posterior column of the

cord. In Goll's column each fibre divides in a Y-shaped manner into two thick terminal fibres—an ascending and a descending fibre—and both of these seem in no respect to differ from the longitudinal fibres of the posterior columns. Both the original fibre and its ascending and descending branches give off collateral fibres, which resemble the similar fibres given off by the fibres of the anterior column. It is obvious that these new facts on the branching of nerve fibres within the white matter of the cord must modify our conceptions of the conduction of impulses in the cord.

(247) On the Communication of the Nasal Lymph Passages with the Subarachnoid Space.

In a recent number of the *Deutsche medicinische Wochenschrift*, No. 44, October 30th, 1890, Dr. Theodor S. Flatau gives an account of his experiments upon the communications between the nasal lymph passages and the subarachnoid space. He comments upon the importance of the subject, and quotes a case in which a chronic hydrocephalus got well after an abundant serous discharge from the nose. The experiments of others are also mentioned, and it is said that Naunyn and Schrieber were able to inject warm salt solution into the subarachnoid space of the dog, and made it come out at the nose, the phenomenon being accompanied by protrusion of the eye and chemosis. Schwalbe also, by injecting Prussian blue in a similar way, obtained injections of the lymphatics of the nose. Key and Retzius found small communicating canals between the subarachnoid space and the nasal lymphatics. Believing that some mistakes had been made, Dr. Flatau has undertaken a fresh investigation, using chiefly rabbits and cats. After injection, a series of coronal sections were made of the heads of these animals, which sections were stained and cleared with especial care. The injection was accomplished by injecting soluble Prussian blue through a cannula into the lumbar subarachnoid space. This injection passed forwards to the olfactory bulb, where it could be traced with great ease along perineural lymph spaces through the lamina cribrosa, where it communicated freely with the vessels in the Haversian canals and with the peripheral lymphatics. The injection of coloured fluid into the nose of freshly killed animals did not, however, lead to the entrance of the fluid into the arachnoid space, on account of the barrier presented by the columnar epithelium.

(248) A New Ligament in the Hand.

Lenhossék (*Anatomischer Anzeiger*, No. 8, 1890, p. 230) describes, under the name of ligamentum dorsale transversum, a fascial band which crosses the extensor tendons of the hand, and corresponds to the descending limb of the Y-shaped ligament of the ankle. This band begins over the base of the fifth metacarpal bone, and ends in the neighbourhood of the trapezium.

PHYSIOLOGY.

(249) On the Cause of the First Sound of the Heart.

As is well known it is usually stated that the cause of the first heart sound is partly valvular and partly muscular. Some indeed contend that it is purely valvular, and others that it is purely muscular. The chief experiments on which the doctrine of its muscular origin rest are the classical experiments of Dogiel and Ludwig. Kasem-Beck (*Pflüger's Arch.*, xlvii, p. 53), under Dogiel's direction, has reinvestigated the subject. As in the original experiments, the excised heart was placed in a glass jar, but in place of König's stethoscope two ear specula were introduced from the auricles into the auriculo-ventricular orifices, and so filled these orifices as to prevent any tension of the valves taking place. Nevertheless, the first sound remained, had the same pitch, but was weaker than in the living animal. In a second series of experiments auscultation was practised on a dog, in which resection of several ribs was performed on the right side, so that the supply of blood to the heart could be cut off by pressure with the finger within the chest. The blood pressure was measured at the same time. On applying pressure both heart sounds were heard for a short time, then the second one disappeared, whilst the first sound remained, but it was not so loud as before. During the compression the heart received only 5 to 10 cubic centimètres of blood. He concludes that the first sound can only be a muscle sound; its enfeeblement in a bloodless heart he ascribes to the diminution of the energy of the cardiac muscle. It is somewhat remarkable that one of Ludwig's pupil's, L. Krehl (*Archiv f. Anat. u. Physiol.* [*Phys. Abth.*], p. 253, 1889), should almost simultaneously have reinvestigated the cause of the first sound, and that he comes to exactly the same conclusion that Ludwig and Dogiel did now over twenty years ago. Ludwig and Dogiel's original paper was published in *Ludwig's Arbeiten*, 1869. A small apparatus was introduced through the wall of the auricle until it came to lie in the auriculo-ventricular orifice. The apparatus was arranged so that after its introduction its end could be expanded, and thus keep the auriculo-ventricular valves from closing. On auscultating the heart, no one—not even the practised physicians who were asked to listen to the heart sounds—could distinguish with certainty differences in the strength of the first sound, whether the apparatus was used or not. The muscular nature of the first sound was also confirmed by the following accidental observation. When a dog is bled from the carotids, as soon as a considerable amount of blood is shed one ceases to hear the second sound, but the first sound can still be heard for some time, as it is a fairly loud sound. Only just before death, and when the heart is beating feebly, does it become weaker. This shows that while the heart is nearly empty of blood, and the auriculo-ventricular valves are no longer stretched, there is still heard a fairly loud tone. It was found that the valveless auricles also emitted a sound during their act of contraction, a tone which has the character of the first sound, only feebler.

(250) Influence of Deglutition on the Heart Rhythm.

The act of deglutition, or better successive acts of deglutition, as in sipping a fluid, in man causes the heart to beat more quickly, by setting aside or diminishing the action of the cardio-inhibitory centre in the medulla oblongata. Wertheimer and E. Meyer (*Arch. de Physiol.* [5] ii, p. 284, 1890) find that this can be shown in a sphygmogram, by first slowing the pulse by holding the breath, and then sipping a fluid. The acceleration is followed by slowing of the pulse. In the dog, when slightly narcotised, every act of deglutition is followed not by acceleration but by slowing of the pulse, which may even result in intermission of the pulse beat altogether. The deglutition reflex still persists during apnœa, but the effect on the heart's action does not take place.

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